

# NANCY GUILLEN

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## Research Interests:

- Quantitative and systems biology studies of cellular-level models of cancer.
- Treatment-induced microRNA regulation
- Cell decision processes
- Computational modeling of cellular signaling pathways
- Translational research to cancer therapies

## Education

- 2004-present     Massachusetts Institute of Technology  
Ph.D. candidate in Bioengineering (expected graduation date: June 2010)  
Thesis Advisors: Prof. Douglas Lauffenburger  
Project Title: Role of microRNAs in intracellular signaling networks regulating hepatocellular carcinoma cell behavior
- 1999-2004     University of Puerto Rico, Mayaguez Campus  
B.S. in Industrial Biotechnology - *Magna cum Laude*  
Barbara McClintock Award

## Experience:

- 2007     Analyst/Instructor  
Analyzed and reported on the current situation of Pharmaceutical and Biotechnology companies and served as a n instructor for Biopharmaceutical Industry Seminar at UPR-Rio Piedras Business School  
Lockwood Financial Advisors/Generans Bioventures
- 2003     Co-Op  
Evaluated novel purification methods for monoclonal antibodies and recommended the more cost effective resin for chromatography  
Schering Plough Research Institute, New Jersey
- 2003     Undergraduate Research Fellow  
Performed biophysical analysis of structure and energetics of *boxB* RNA/N peptide interactions by <sup>1</sup>H NMR, fluorescent titration, and circular dichroism  
SURF Program, California Institute of Technology
- 2002-2004     Undergraduate Research Assistant  
Investigate structural dynamic changes and ligand-receptor interactions of EGFR and its ligands by 2D FT-IR studies  
Department of Chemistry at University of Puerto Rico, Mayaguez

- 2003 Intern  
Reported information on Biotech companies having products for cancer on pipeline  
Generans Life Sciences - Lockwood Financial Advisors Corp., Puerto Rico
- 2002 Undergraduate Research Assistant  
Nano-fabricated a molecular sieve with collagen membranes on silicon and analyzed it with UV spectroscopy and SEM  
Nanobiotechnology Center – REU, Cornell University

## Teaching Experience

- 2007 (Spring) Instructor for Bio/Pharma Industry Seminar (FING 6721) at UPR- Rio Piedras
- 2005 (Fall) Teaching Assistant for Thermodynamics of Biomolecular Systems (BE.110) at MIT

## Skills and Qualifications

- Bilingual (English and Spanish)
- Computer Knowledge: Microsoft Office (Word, Excel, Power Point, etc.), Internet, MathCad, MatLab, Mathematica, Molecular Modeling, C++, AutoCAD, Unix, Silicon Graphics computers, Bioinformatics
- Laboratory skills: scanning electron microscope (SEM), photolithography, UV spectroscopy, FT-IR spectroscopy, HPLC, bioreactors (fermentor), lyophilization, mammalian and bacterial cell culture, SDS-PAGE and Western blotting, ELISA, flow cytometry, q-RT-PCR, Luminex, high-throughput microRNA profiling, usage of other analytical and regular laboratory equipment, and experience in clean room protocols
- Effective communication skills, efficient organization of projects and fast learning capacity
- Successful teamwork experiences and leadership skills

## Awards and Scholarships

- 2009 Keystone Symposia scholarship
- 2005-2009 MIT-NIGMS Biotechnology Training Program Fellowship
- 2004 Biotechnology Institute Minority and Indigenous Fellowship
- 2004 Barbara McClintock Medal for Outstanding Industrial Biotechnology Student
- 2002 Annual Biomedical Research Conference for Minority Students: Oral Presentation Award, Chemical Sciences
- 2002-2004 Alfred P. Sloan Foundation Scholarship for Undergraduate Research

## Recent Activities

- 2008-2009 Office of the Dean for Graduate Education at MIT: Graduate Community Fellow
- 2008-2009 Mentees Puertorriqueñas en Acción: Conference Committee Director
- 2008-2009 MIT Summer Research Program: Program Assistant
- 2006-2007 Biological Engineering Board – Diversity Representative
- 2005-2006 Biological Engineering Board – Academic Representative

## Publications

I Iloro, D Narváez, N Guillén, CM Camacho, L Guillén, E Cora, B Pastrana-Ríos. *The Kinetics of the Hydrogen/Deuterium Exchange of Epidermal Growth Factor Receptor Ligands*. Biophysical Journal, 2008. **94**(10): p. 4041-4055.

LA Lepak, T Richards, N Guillen, M Caggana, JN Turner, and MG Spencer, *Preparation and Characterization of Porous Collagen Membranes on Silicon*. Mat. Res. Soc. Symp. Proc., 2003. **752**: p. AA8.17.1-6.

## Presentations

- 2009 N Guillen, DA Lauffenburger. "Role of microRNAs in intracellular signaling networks regulating hepatocellular carcinoma cell behavior" Abstract accepted for poster presentation at the MicroRNA and Cancer Keystone Symposia, June 2009, Keystone, CO.
- 2006 N Guillen, DA Lauffenburger, DB Schauer. "Differential Signaling in EPEC and EHEC Infection in Intestinal Cells" Presented at the 46<sup>th</sup> Annual Meeting of the American Society for Cell Biology.
- 2004 N Guillen, et. al. "EGFR family of ligands hydrogen/deuterium exchange". Presented at the Eighteenth Symposium of The Protein Society; August 2004, San Diego, CA.
- 2003 N Guillen. "Structure and Energetics of Bacteriophage  $\lambda$ 's N-Peptide/BoxB RNA Interactions" Oral presentation at the Annual Biomedical Research Conference for Minority Students; October, 2003, San Diego, CA.
- N Guillen, D Narvaez and B Pastrana-Rios. "H/D exchange of EGFR ligands using FT-IR spectroscopy and 2D correlation analysis" Presented at the Proteomics Solutions in Cellular and Developmental Biology and Medicine Conference; Kansas City, MO. May 2003.
- N Guillen, et. al. "Fast H/D Exchange Two-Dimensional Correlation Spectra Studies For EGF Using FT-IR" Presented at the First Colloquium in Protein Structure, Function and Dynamics; February 2003, Ponce, PR.
- 2002 N Guillen. "Nanofabrication and Analysis of a Molecular Sieve Using Collagen" Oral presentation at the Annual Biomedical Research Conference for Minority Students; November 2002, New Orleans, LA.
- N Guillen, et. al. "Molecular Filtration with Collagen" Presented at the Latin American & Caribbean Biotechnology Congress: November 2002, Mayaguez Resort, Mayaguez, P.R.

## Personal Interests:

Snowboarding, swimming, running, cooking, world traveling, reading fiction

## References

Available upon request